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Global political economy clusters: the world as perceived through black-box data analysis of proxy country rankings and indicators

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Abstract

Country rankings and composite indices are often used as proxies to assess a country's functional efficiency along a dimension of interest. The underlying assumption of this effort is that the proxy measure reflects, in essence, the gist or underlying trend of a country's performance in absolute terms or in comparison to other countries. In this paper we explore the world of country-oriented performance indices and rankings. First, we carry out a comparative review for a number of such proxy measures. Second, we carry out cluster analysis to 'map' the world through the eyelets of these proxy measures. Taking into consideration the outcomes of this exploratory data analysis, we wonder whether such proxies are mere representations of 'performance,' or instigators shaping the global political economy by weighing some characteristics more than others.

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Keywords: Global Political Economy, Country Clusters, Globalization Indices, Country Rankings, Exploratory Analysis.

1. Introduction and Background

The world is increasingly being snapshot and measured by aggregate comparative measures. So-called 'globalization' are synthetic indices that quantify the level of entanglement between different parts of the world and its activities. For instance, globalized indices are used to assign an aggregate score as a proxy to portray the response

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to important questions like "*How internationalized or globalized is a country in relation to others?*", "*How, or how much, does a country affect the environment in relation to others?*", "*How fair is the function and structure of its society in relation to others?*" and so on. All such indices, and at least the ones considered in this research, take into account qualitative (i.e. like perceptions, opinions) and quantitative (i.e. discrete or continuous variables) data and usually aggregate them into a single number. This aggregate is then used to score, rank, or both, countries according to their performance on the particular index. In turn, the outcomes presumably allow everyone to make intuitive observations about the countries of interest as 'good' or 'bad' performer at least in comparison to the other countries considered in the index. The term 'everyone' potentially includes stakeholders, researchers, interest groups and policy-making actors, presumably, who may use these findings in more advanced settings to advocate reforms, public policies, and so on.

1.1. Relevant research and literature

Proponents of such indices consider them as unidimensional or multidimensional snapshots of the globalization process or its footprint under the assumption that, nowadays, the world at large resembles a politico-economic system composed of interrelated subsystems. For instance, well-known 'globalization' measures include the "*KOF Index of Globalization*", the "*Maastricht Globalization Index*" and its revisions, the "*CSGR Globalisation Index*" and the "*Foreign Policy with A.T.Kearney Globalisation Index*" (respectively, see Dreher i2008; Figge & Martens 2014; as discussed in Dreher et al. 2008). Similarly, the "*Environmental Performance Index*" focuses only on the environmental footprint (Hsu et al. 2014), i.e. focusing exclusively on the environmental footprint dimension.

In most, if not all, of these frameworks, the sovereign state resembles a cog in the globalized machine and becomes the preferred yardstick of globalization measurement; supra-state groupings or sub-state regions are more or less disregarded when measuring globalization. Hence, most of these measures are synthesized so as to capture meaningful aspects of state-contained human activity in the global arena. Depending on the preferences of the analysts the calculated indices may then serve as proxies to a state's economy, its society, its politics, its technology or their interactions. '*True*' or holistic globalization indices, like the ones mentioned above, seek to synthesize PEST-like measures, i.e. to unite politics, economics, social and technology measurements into a synthetic, high level measurement of Globalization. Naturally, different indices put the emphasis on different perspectives. For instance the AT Kearny/Foreign Policy index considers all four of these dimensions independently, whereas the KOF and CSGR indices consider only the economic, social and political dimensions and presumably under the assumption that technology's effects are incorporated expressed in the other dimensions.

The plurality of views on how and what to measure as globalization, naturally paves the way for an extended debate. Actually, two debate streams seem to take place. The first one seems to be whether globalization can be effectively measured and if so, whether such measurements provide a meaningful context for the respective analysts, researchers and other stakeholders to use. For instance, Wolf Jr (2000), Andersen & Herbertsson (2005), and Bobek & Korez Vide (2005) suggest that measurement is not only feasible but also a useful gauge in understanding how interconnected the world really is. Critics, on the other hand, pertain that such quantifications favor an oversimplified view of what in essence are fairly complex processes; such as the problems, policies and debates that produce and constitute the measurable outcomes (Merry 2011). Hence, the usefulness and spread of gauging globalization seems to hinder the importance of pragmatic problem solving in politics, societies and economies by making them analogous to corporate-like, technically-oriented problem solving. Against this argument, Dreher *et al.* (2010) suggest that the measurement exercise is insightful and should be continued, although a widely accepted, synergetic and multidisciplinary methodology is now due, presumably replacing existing practices and addressing as many shortcomings as possible.

The second debate stream seems to focus on the measurement methodology, particularly on the number and relevant importance (or weighting) of the different factors used to produce the quantitative snapshots. That is, the real question is "*what?*" to measure and "*how important it is?*" in painting part of the overall picture. Nearly every index methodology presents their own arguments as to why factor 'X' is an important aspect of the measurement subject's globalized characteristics. A detailed review of these (counter-)arguments into the calclulation and construction of the different indices is beyond the scope of this paper; hence we refer the reader to Dreher *et al.* (2008, 2010), Samimi *et al.* (2012), Caselli (2013), and Zinkina *et al.* (2013) for insightful and critical reviews of

the methodologies and some well-known indices. All the same, measuring globalization seems to constitute an important research challenge (or '*holy grail*'?) that is not confined in any academic field. The efforts to produce a widely accepted globalization measurement framework seems to continue undiminished, in order to improve existing or to develop new approaches (for instance, Raab i 2008; Dreher *et al.* 2008; Figge & Martens, 2014; Martens *et al.* 2015).

1.2. Scope and objectives

Taking the above into consideration we observe that globalization measurement is a relatively abundant practice, with pros and cons to it, as expected. Rather than evaluate these methodologies or get entangled into the existing debate, we take the debate to the next level. Thus, we proceed to ask questions about the, undoubtedly, globalized world which is measured nonetheless, and use these to ponder '*what?*', if anything, these globalized indices can tell us about the world we live in.

Therefore, we presume globalized indices to be an analogy to 'sensors' or 'measurement instruments' (i.e. like temperature sensors, speedometers, etc.). Their 'accuracy,' 'efficiency' and 'effectiveness' will only improve with time, as the world and the methodologies progress, along with the widespread availability of data. Debating and improving the accuracy of an instrument is important, of course, especially for those developing these instruments. However, it is also time, and perhaps more important, to start using these, admittedly, intangible sensors as creatively as possible and in conjunction to each other, in order to better understand the current world, how it works, and therefore how to improve it – if and when necessary. By doing so it will also become easier to identify and address any shortcomings in these sensor-indices. An in due course we will come to learn which sensor-indices are relevant for which diagnosis.

Thus, we make a first, cautious step in a much larger research agenda, which we outline later in this paper. Our effort is mainly an exploratory analysis into the world of globalized indices and whether they, collectively, imply something more than a historical '*snapshoting*' the timeline and evolution of globalization. Hence, in this exploratory study we set out to (a) explore the qualitative characteristics of the selected indices and comment on their similarities and differences, and (b) to perform 'black-box-like' cluster analysis, leading us to the global political economy clusters which we depict and discuss respectively. In the rest of this paper, we strive to use the term "*index*" to refer only to the composite measure developed by the various institutions, for instance globalization index or globalization indices. We use the term "*indicator*" to refer to composite or discrete measures used with any given index, for instance the "Basic Human Needs" indicator or the "Adult literacy rate (% of population aged 15+)" indicator (both found in the Social Progress Index).[2]

The rest of this paper is organized as follows: In section 2 we discuss the methodology, tools and data collection process used in this study. In section 3 we present our main findings. In particular, in section 3 we analyze quantitative and qualitative characteristics of the indices selected. In section 4 we present and discuss the Global Political Economy (GPE) clusters. In section 5we consider the benefits of this study and potential research agenda.

2. Methodology, Tools and Data Collection

In this paper we explore the structure and data for a number of indices we consider 'globalized,' although not all of them gauge globalization exclusively, as we explain subsequently. In particular, the indicators, according to their context can be grouped as shown in Table 1.

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[2] Given that the index publishers often use the terms interchangeably, and the omnipresent 'Murphy's laws' we kindly ask our reader to use the surrounding text to infer the context of the terms. We apologize in advance for whenever we fail to adhere to our own 'policy'.

Table 1. Selected 'globalized' indicators grouped by context

Measure of	Addresses questions like:	Indices
Globalization	*How much globalized a country really is?*	KOF Globalization Index
		Maastricht Globalization Index
		CSGR – Globalization Index
		Global Innovation Index (*)
		Network Readiness Index (*)
Well being	*How well do people fare in their countries?*	Social Progress Index
		Legatum Prosperity Index
		Global Food Security Index
Society/Politics	*How fair is the society structure or elements thereof?*	Worldwide Governance Indicators (**)
		World Press Freedom Index
		Corruption Perceptions Index
		Global Peace Index
Economy	*How robust is the economy?*	Global Competitiveness Index
		World Bank – Doing Business
Environment	*How environmentally friendly is it?*	Environmental Performance Index

(*) *Albeit with an emphasis on the technology dimension.*

(**) *The WGI refer to scores in six dimensions that are not aggregated into a single 'governance' score. In this study we used the average of these scores as a single measurement to represent governance.*

The indicators in Table 1 were identified via internet and academic literature search as there is no definitive catalog of synthetic indicators that we are aware of. We chose the indices according to the following characteristics:

- The indices should come from traceable and creditable sources, such as international institutions or organizations, think tanks, research centers, or reputable scientists.
- The indices should adopt a 'worldwide perspective' by means of a 'worldwide' assessment, which is implicitly or, in some cases explicitly, consistent with the notion of 'globalization.'
- The data used was freely available to the general public, and therefore could be readily used in the context of this analysis.
- The index calculated on an annual basis.

Overall, we aimed to find an indicative collection of synthetic indices that allows for a PEST-like view of the world.[3] In this context, the indices are considered as compact descriptors of political, economic, societal and technological characteristics for as many countries as possible. Still, by the time of writing we were unable to identify a synthetic index focusing exclusively on the technology dimension.[4] So, with respect to the PEST-like view of the world we note that the technology dimension is covered explicitly in a number of the indices considered, which suffices for the purposes of the paper. Among them, the Global Innovation Index and Network Readiness Index, despite their names, put the emphasis on the technology dimension but in addition to politico economic attributes influencing the technological footprint. Similarly, the Environmental Performance Index clearly infers to the good and bad use of technology in general unavoidably biased towards 'Green' technologies as opposed to

[3] The selection of indices in this paper is indicative and rather arbitrary; it contains a set of indices which collectively may represent a PEST-like view of the world. There are, of course, many other indices that due to time restrictions were excluded from this work, which we will be considering in future and more exhaustive work.

[4] Kindly email us to point an index that is explicitly technology-based, and allow us to address this shortcoming.

technology in general and ignores the all-important "Information and Communications Technology (ICT)" dimension.

In carrying out this analysis we used the software Orange, an open source data visualization and analysis (Demšar and Erjavec 2013).[5] As mentioned above, apart from a few parameters which we adjusted for using the software with our data, we used it mostly as a black-box tool assuming that all methods are implemented in a standardized form.[6]

3. Analysis of structural characteristics

We consider two complementary perspectives when exploring the structure of the selected indices. The first analysis perspective is relevant to the 'places' referenced in each index. We use the term 'places' because, as we were able to observe, not all indices include countries (i.e. sovereign states) in their measurements and, at the same time, and not all countries and regions seeking sovereign status are included in every index.[7] We summarize our findings in Table 2.

Table 2. Summative analysis for the number of places included in globalised indices.

#	Index Name	Abbreviation	UN Membership		Other type	Total Countries	Total Indexed
			Yes	No			
1	Social Progress Index	SocProIn	132	0	0	132	132
2	Environmental Performance Index	EnvPerIn	177	0	1	177	178
3	KOF Globalization Index	KOFGlobIn	189	1	15	190	205
4	Legatum Prosperity Index	LegProsIn	140	0	2	140	142
5	Maastricht Globalization Index	MaaGlobIn	117	0	0	117	117
6	World Press Freedom Index	WldPrIn	175	3	2	178	180
7	Corruption Perceptions Index	CorPerIn	171	1	3	172	175
8	Worldwide Governance Indicators	WldGovIn	193	2	20	195	215
9	Global Competitiveness Index	GloCompIn	148	0	3	148	151
10	Global Peace Index	GloPeaceIn	160	1	1	161	162
11	Global Food Security Index	GlFdSecIn	109	0	0	109	109
12	World Bank – Doing Business	WBDoBus	184	2	3	186	189
13	CSGR – Globalization Index	CSGRIn	189	1	18	191	208
14	Global Innovation index	GloInnovIn	142	0	1	142	143
15	Network Readiness Index	NetReadIn	145	0	3	145	148
	All indices, unique values		*193*	*3*	*25*	*196*	*221*

[5] The software is freely available from the university of Ljubljan, at http://orange.biolab.si. We are not endorsing or have been endorsed by the creators of the software.

[6] The reader wishing to question the software implementation of the clustering methods should contact the software developers.

[7] Henceforth, we will use the term 'countries' to refer to both the UN members and the territories seeking recognition as sovereign countries – i.e. Kosovo, Northern Cyprus and West Bank & Gaza. We do so for the economy of the presentation only and make no inference, whatsoever, to the legal or actual sovereign status of these territories, or to our personal opinion regarding it.

We cross tabulated all the countries and places against each index. Due to its size the master table is presented in the appendix. Out of the 196 (or 193+3) countries set, only 83 countries are used in all these 'world' indices – or 43% of the 'true' world is taken into account in all of these indices. The most notable exception are the Worldwide Governance Indicators that are truly worldwide, closely followed by the KOF and CSGR Globalization indices. We will be using this set of 83 countries for the Global Political Economy clusters' analyses later on.

In Table 3 we analyze the places and territories that are not UN members and their use in the selected indices. In particular, the three non-UN members countries, are (alphabetically): Kosovo, North Cyprus, West Bank & Gaza, and their index usage is depicted by the cells highlighted with a yellow color. The red-colored cells depict places used in the indices that are considered part of a sovereign country.

Table 3. Analysis of Non-sovereign places used in globalized indices

Places listed that are not UN members	Freq.	Status	SocProIn	EnvPerIn	KOFGlobIn	LegProsIn	MaaGlobIn	WldPrIn	CorPerIn	WldGovIn	GloCompIn	GloPeaceIn	GlFdSecIn	WBDoBus	CSGRIn	GloInnovIn	NetReadIn
American Samoa	3	Place	-	-	Yes	-	-	-	-	Yes	-	-	-	-	Yes	-	-
Anguilla	1	Place	-	-	-	-	-	-	-	Yes	-	-	-	-	-	-	-
Aruba	2	Place	-	-	-	-	-	-	-	Yes	-	-	-	-	Yes	-	-
Bermuda	3	Place	-	-	Yes	-	-	-	-	Yes	-	-	-	-	Yes	-	-
Cayman Islands	3	Place	-	-	Yes	-	-	-	-	Yes	-	-	-	-	Yes	-	-
Channel Islands	3	Place	-	-	Yes	-	-	-	-	Yes	-	-	-	-	Yes	-	-
Cook islands	1	Place	-	-	-	-	-	-	-	Yes	-	-	-	-	-	-	-
Cyprus North	1	Country	-	-	-	-	-	Yes	-	-	-	-	-	-	-	-	-
Faeroe Islands	2	Place	-	-	Yes	-	-	-	-	-	-	-	-	-	Yes	-	-
French guiana	1	Place	-	-	-	-	-	-	-	Yes	-	-	-	-	-	-	-
French Polynesia	2	Place	-	-	Yes	-	-	-	-	-	-	-	-	-	Yes	-	-
Greenland	3	Place	-	-	Yes	-	-	-	-	Yes	-	-	-	-	Yes	-	-
Guam	3	Place	-	-	Yes	-	-	-	-	Yes	-	-	-	-	Yes	-	-
Hong Kong SAR	9	Place	-	-	-	Yes	-	Yes	Yes	Yes	Yes	-	-	Yes	Yes	Yes	Yes
Isle of Man	2	Place	-	-	Yes	-	-	-	-	-	-	-	-	-	Yes	-	-
Kosovo	5	Country	-	-	-	-	-	Yes	Yes	Yes	-	Yes	-	Yes	-	-	-
Macao, China	3	Place	-	-	Yes	-	-	-	-	Yes	-	-	-	-	Yes	-	-
Martinique	1	Place	-	-	-	-	-	-	-	Yes	-	-	-	-	-	-	-
Mayotte	1	Place	-	-	-	-	-	-	-	-	-	-	-	-	Yes	-	-
Netherlands Antilles	3	Place	-	-	Yes	-	-	-	-	Yes	-	-	-	-	Yes	-	-
New Caledonia	3	Place	-	-	Yes	-	-	-	-	Yes	-	-	-	-	Yes	-	-
Niue	1	Place	-	-	-	-	-	-	-	Yes	-	-	-	-	-	-	-
Northern Mariana Islands	2	Place	-	-	Yes	-	-	-	-	-	-	-	-	-	Yes	-	-
Puerto Rico	7	Place	-	-	Yes	-	-	-	Yes	Yes	Yes	-	-	Yes	Yes	-	Yes
Réunion	1	Place	-	-	-	-	-	-	-	Yes	-	-	-	-	-	-	-
Taiwan, China	9	Place	-	Yes	-	Yes	-	Yes	Yes	Yes	Yes	Yes	-	Yes	-	-	Yes
Virgin Islands (U.S.)	3	Place	-	-	Yes	-	-	-	-	Yes	-	-	-	-	Yes	-	-
West Bank and Gaza	5	Country	-	-	Yes	-	-	Yes	-	Yes	-	-	-	Yes	Yes	-	-

In Table 4 we depict the associations between places and countries.

Table 4. Places used in indices and associated countries

Territory of / Associated with	Count	Place
China	3	Hong Kong SAR
		Macao, China
		Taiwan, China
Denmark	2	Faeroe Islands
		Greenland
Commonwealth / Elizabeth II	2	Channel Islands
		Isle of Man
France	6	French Guiana
		French Polynesia
		Martinique
		Mayotte
		New Caledonia
		Réunion
Netherlands	2	Aruba
		Netherlands Antilles
New Zealand realm	2	Cook islands
		Niue
UK	3	Anguilla
		Bermuda
		Cayman Islands
USA	5	American Samoa
		Guam
		Northern Mariana Islands
		Puerto Rico
		Virgin Islands (U.S.)

The second perspective refers to the characteristics of each index, namely the way each index is structured and the way the index is built up from data. In Table 5 we summarize the structural characteristics of the selected indices.

Table 5. Summary of the indices' structural characteristics

# -	Index long name	Abbrev.	countries	Better is	Index timeline			Hierarchy	Aggregation	Indicators	Data used		Methodology Described
					Data Start	Index Start	Finish				Quant.	Qual.	
1	Social Progress Index	SocProgIn	133	higher	2013	2013	Current	4 Levels	Score + Rank	54	Yes	Yes	Yes
2	Environmental Performance Index	EnvPerIn	178	higher	2002	2014	Current	3 Levels	Weighting	19	Yes	No	Yes
3	KOF Globalization Index	KOFGlobIn	207	higher	1970	2002	2012	4 Levels	Weighting	23	Yes	No	Yes
4	Legatum Prosperity Index	LegProsIn	142	higher	2009	2009	Current	4 Levels	Weighting	89	Yes	Yes	Yes
5	Maastricht Globalization Index	MaaGlobIn	117	higher	2000	2003	2012	3 Levels	Weighting	11	Yes	No	Yes
6	World Press Freedom Index	WldPrIn	180	lower	2002	2002	Current	3 Levels	Weighting	N/A (*)	No	Yes	Yes
7	Corruption Perceptions Index	CorPerIn	175	lower	1995	1995	Current	N/A	Scoring	N/A (**)	No	Yes	Yes
8	Worldwide Governance Indicators	WldGovIn	215	higher	1996	1996	2013	3 Levels	Scoring	32	No	Yes	Yes
9	Global Competitiveness Index	GloCompIn	144	higher	2005	c. 1980	Current	5 Levels	Average	116	Yes	Yes	Yes
10	Global Peace Index	GloPeaceIn	126	lower	2007	2008	Current	2 Levels	Score + Rank	24	yes	Yes	Yes
11	Global Food Security Index	GlFdSecIn	109	higher	2012	2012	Current	3 Levels	Scoring	28	Yes	Yes	Yes
12	World Bank – Doing Business	WBDoBus	189	Higher	2003	2003	Current	3 levels	Score + Rank	41	Yes	No	Yes
13	CSGR – Globalization Index	CSGRIn	208	Higher	1998	2004	2004	3 levels	Score + Rank	16	Yes	No	Yes
14	Global Innovation index	GloInnovIn	143	Lower	2007	2007	Current	2 Levels	Score + Rank	81	Yes	Yes	Yes
15	Network Readiness Index	NetReadIn	148	Higher	2001	2001	Current	3 levels	Scoring	54	Yes	Yes	Yes

(*) *The Reporters Without Borders methodology briefing suggests that the index "is partly based on a questionnaire" but there is no specific mention of what other variables are being considered if any, or we were unable to identify this information from the particular briefing.*

(**) *Transparency International methodology report mentions 12 sources that perform corruption-related questionnaires and from which corruption rankings are retrieved/processed. However no individual indicators are mentioned.*

The term 'current' in the *Finish* column implies that the index is still being calculated on an annual basis (*or at least there is no definite evidence to the contrary)* and that the data from its latest available version has been used in this paper. For instance KOF, Maastricht and WGI seem to have stopped annual index calculations respectively in the years mentioned and only receive occasional data updates (Table 6).

Table 6. Data series used in the paper[8]

Index	Index data series for	Data series updated	Original Scale
Social Progress Index	2015	←	0-100
Environmental Performance Index	2014	←	0-100
KOF Globalization Index	2012	2015	0-100
Legatum Prosperity Index	2014	←	-4 to +4
Maastricht Globalization Index	2012	2014	0-100
World Press Freedom Index	2014	←	0-100
Corruption Perceptions Index	2014	←	0-100
Worldwide Governance Indicators	2013	←	-2.5 to +2,5
Global Competitiveness Index	2014-2015	←	1-7
Global Peace Index	2014	←	1-5
Global Food Security Index	2014	←	0-100
World Bank – Doing Business	2015	←	0-100
CSGR – Globalization Index	2004	2004	0-1
Global Innovation index	2014	←	0-100
Network Readiness Index	2014 (*)	←	1-7

(*) *The latest data is for 2015. However, we preferred to use the 2014 series because it includes more countries than the 2015 list, and thus allows for a more 'global' investigation. See World Economic Forum (2015:7) for more information on the countries not included in 2015.*

The CSGR data was scaled by multiplying with 100. All other data was rescaled to 0-100 using the following formula in equation (1).

$$100 \times \frac{Country\ Score - Min\ Scale\ Value}{Max\ Scale\ Value - Min\ Scale\ Value} \quad (1)$$

The Worldwide Governance Indicators were aggregated into a single number by averaging the governance scores of the six perspectives.

[8] All data was retrieved from the websites of the respective indicators. See appendix "A.2. Directory of index publishers " for more information. Most index publishers provide the data readily in standard spreadsheet format. For indices where this feature was not available, the data was extracted from relevant report available in the website.

Taking into consideration the findings thus far, we proceed to perform our Global Political Economy clusters analyses, and consider a view of the world as portrayed by the selected indices and the common country set used in these indices.

4. Global Political Economy Clusters

We proceed to consider the GPE clusters produced from our exploratory analysis. We have grouped the clusters according to the context of the respective indices used to produce the clusters, respectively, “All indices”, and then the Globalization, Well-being, Society and Economy clusters, which we present and discuss below. All the analyses were performed using the same tool and refer to the data only for the 83 countries that are common in all the indices.

4.1. 4.1 The ‘All indices’ Clusters

This analysis is achieved using the data from all the indices as different attribute measurements for each of the countries in the data set. Therefore the resulting dendrogram infers country clusters shaped by taking all the corresponding characteristics into account (Figure 1). The clustering setting used was the Pearson Correlation similarity metric and the Complete linkage to compute the corresponding dendrogram.

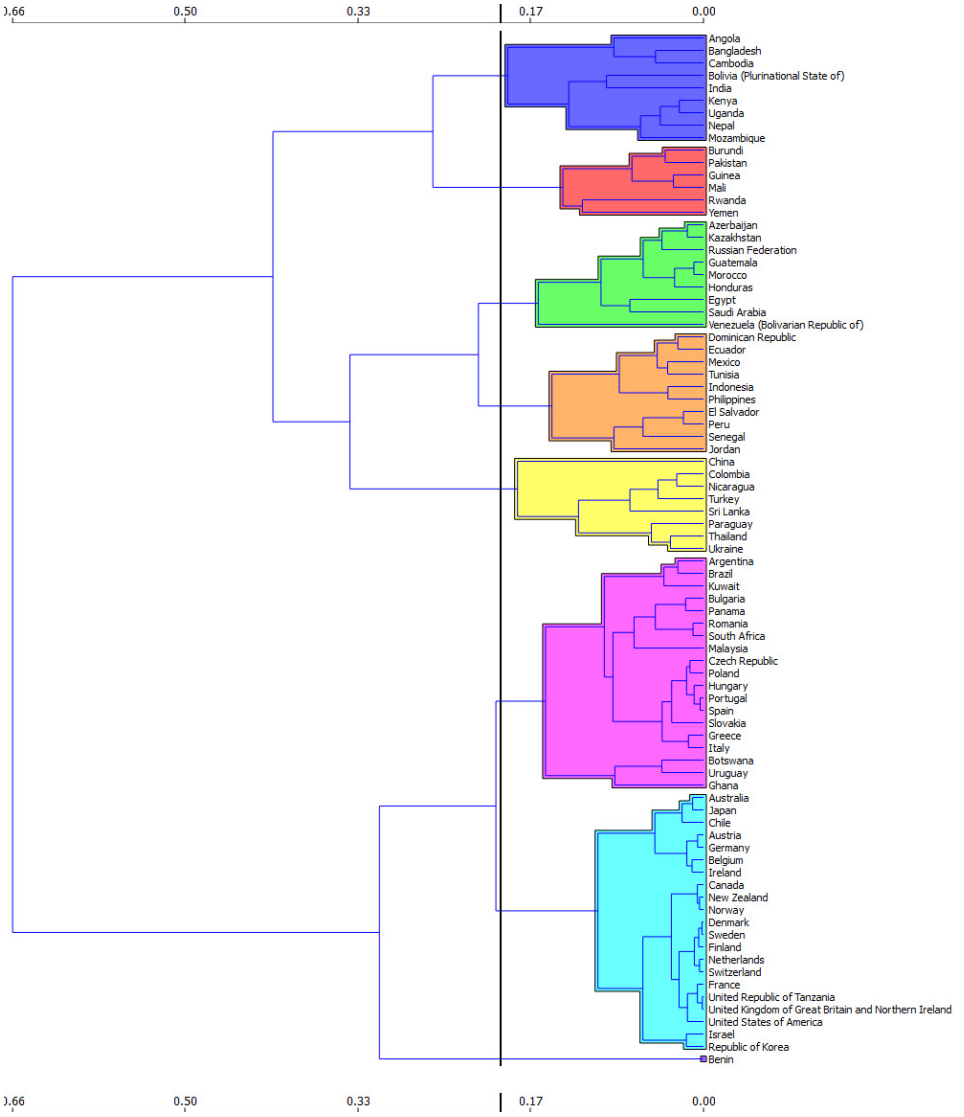

Figure 1 Dendrogram of all indices clusters. Line indicates coloring cutoff point (approx. at ~0.19)

Numbering the colored clusters from top to bottom the colored clusters from 1 to 8, in **Error! Reference source not found.**, we note that cluster #7 contains the countries from Australia to Republic of Korea contains, essentially, most of the so called 'western' or economically advanced world (cluster #8 only has Benin). Along with the rest of the clusters depicted, we note that seem to be formed around the consistency of country performance across the board. Hence it we note that many neighboring countries also seem to cluster together. For instance all the north Mediterranean countries are in cluster #6. Not also that the OECD, EU, as well as Eurozone members are to be found in different clusters.

4.2. The Globalization Clusters

By performing the analyses only on the data provided by the 'Globalization' indices, the resulting dendrogram changes completely almost completely (Figure 2). The clustering setting used was the Pearson Correlation similarity

metric and the Complete linkage to compute the corresponding dendrogram.

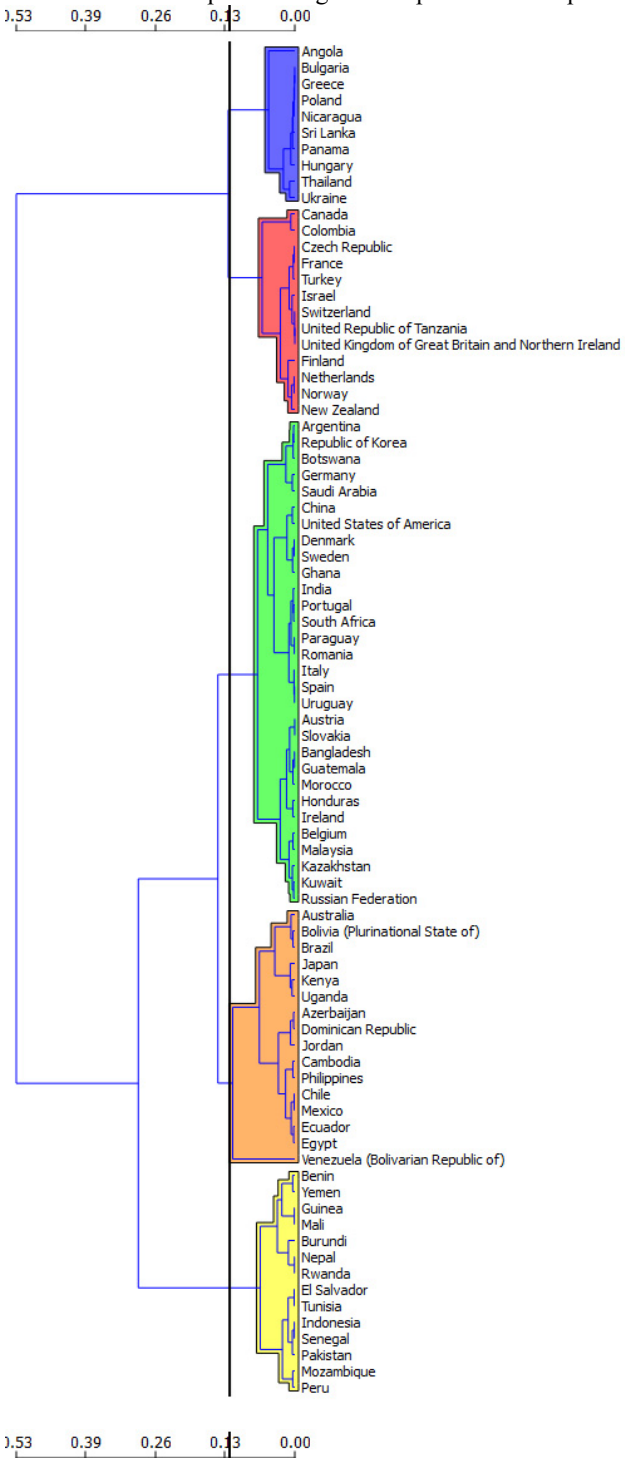

Figure 2. Dendrogram of globalization indices clusters. Line indicates coloring cutoff point (approx. at ~0.12)

Similarly to the overall dendrogram we note that OECD, EU and Eurozone countries are to be found in different clusters. Apart from that the clusters are rather mixed and it is hard to discern any intuitive patterns.

4.3. The Wellbeing Clusters

The clustering setting used was the Pearson Correlation similarity metric and the Complete linkage to compute the corresponding dendrogram (Figure 3). Again OECD, EU and Eurozone members are to be found in different clusters, and the US seems to form a 1-member cluster at the cutoff point. This is the only dendrogram, however, in our paper, where the BRICS members are to be found together (top-most cluster)

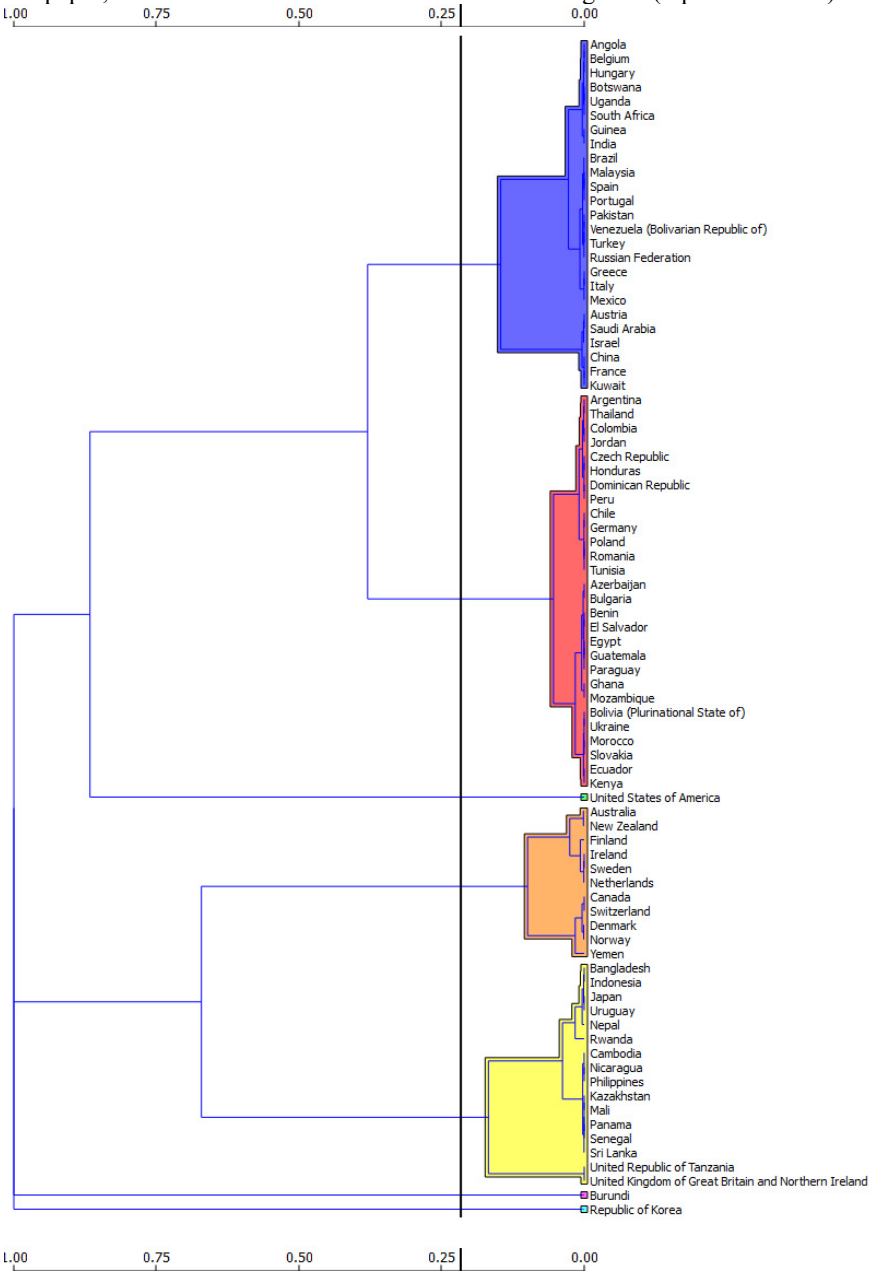

Figure 3. Dendrogram of wellbeing indices clusters. Line indicates coloring cutoff point (approx. at ~0.22)

4.4. The Societal Clusters

The clustering setting used was the Pearson Correlation similarity metric and the Complete linkage to compute the corresponding dendrogram (Figure 4).

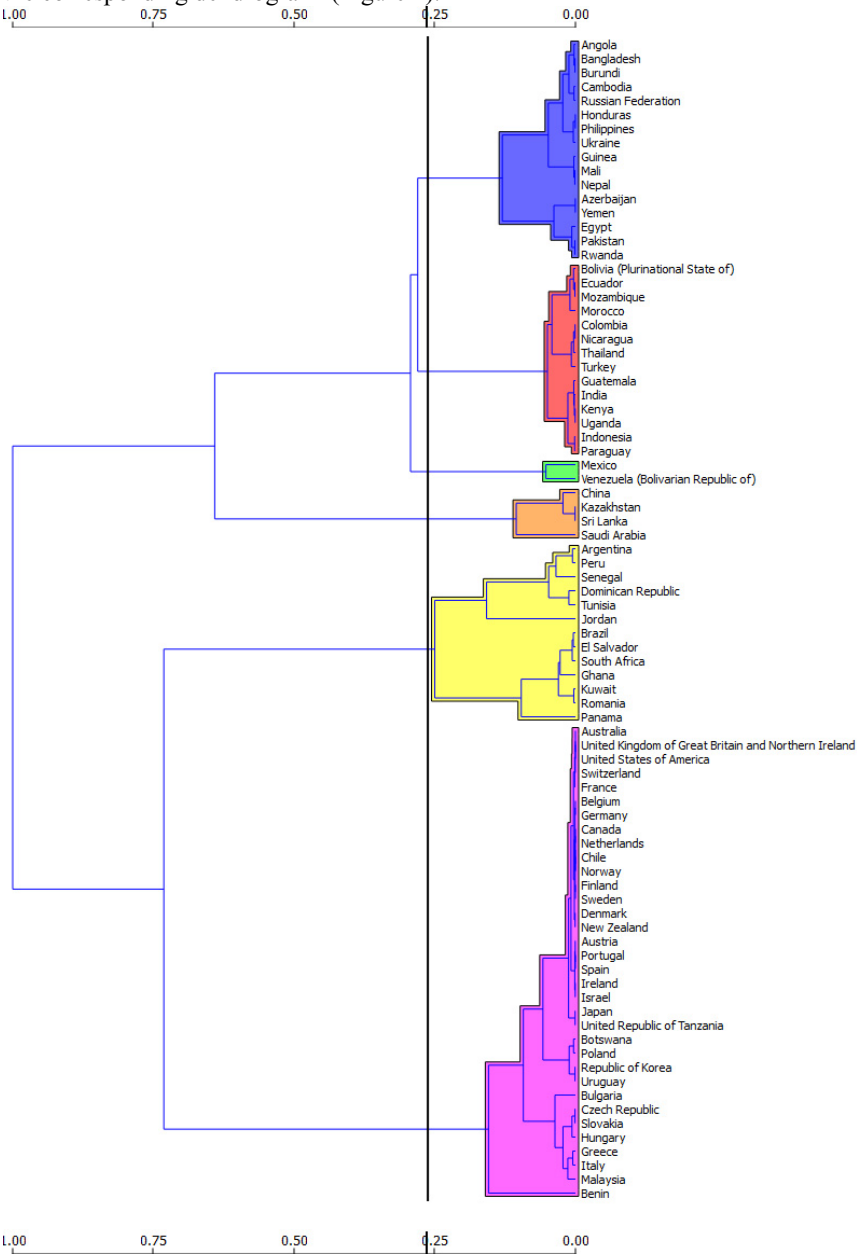

Figure 4. Dendrogram of societal indices clusters. Line indicates coloring cutoff point (approx. at ~0.26)

The societal clusters seem to cluster together OECD, EU and Eurozone members, the only exception being Romania (an EU member) which is in a different cluster. This is very interesting as the societal clusters are based on indicators that are largely based on the functioning of institutions.

4.5. The Economy Clusters

The clustering setting used was the Manhattan similarity metric and the Complete linkage to compute the corresponding dendrogram (Figure 5). The Pearson correlation similarity metric did not produce any clusters so the Manhattan metric was used instead – this is probably because the two indices used were insufficient to produce meaningful clusters.

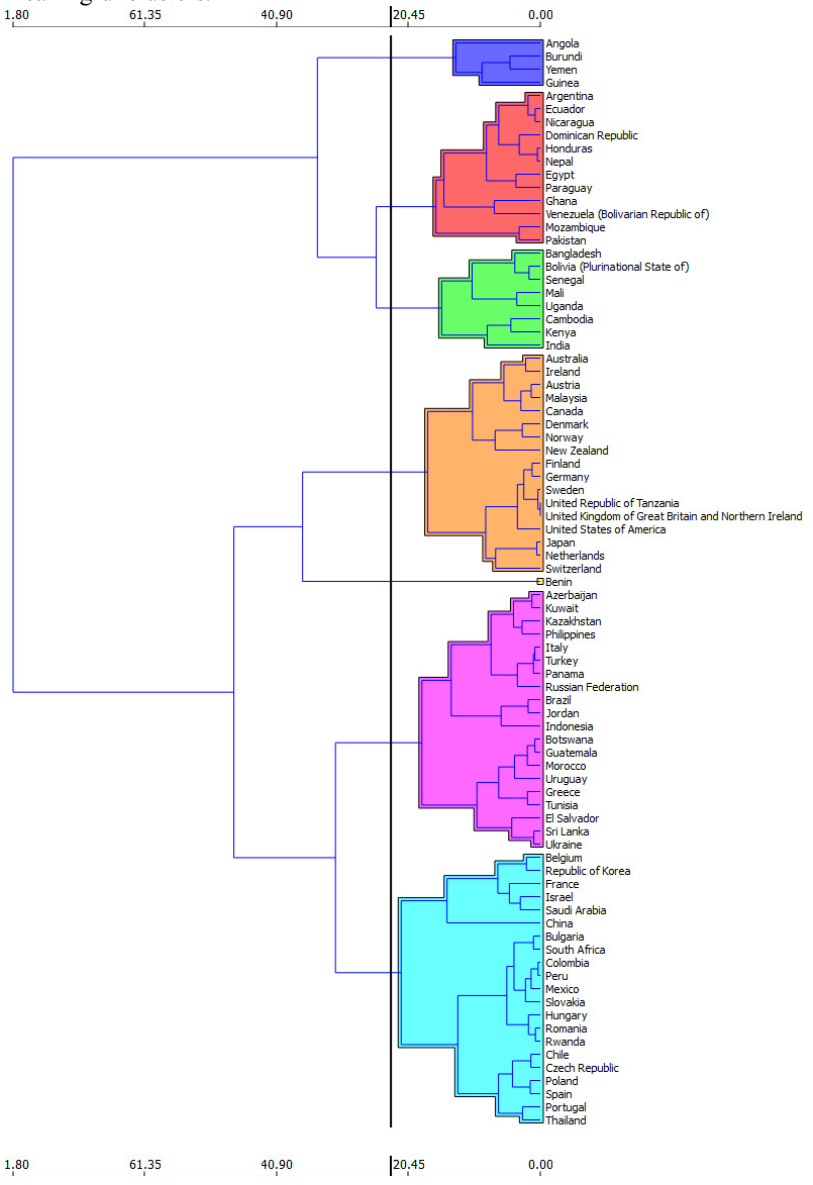

Figure 5. Dendrogram of economy indices clusters. Line indicates coloring cutoff point (approx. at ~23.19)

The economic clusters appear to be more or less symmetric but again we notice the 'break -up' of OECD, the EU and the Eurozone. At a lower cutoff point the clusters are still rather symmetric but the OECD and EU members are even further apart. Since this clustering was based only on two indicators we make these observations with caution until we are able to include more data. We also note, that due to large availability of macroeconomic and microeconomic data it is possible to investigate the economic clusters in relation to indicators like GDP, Government Debt, Trade deficit, etc., which should be interesting.

4.6. The Environment clusters

The clustering setting used was the Manhattan similarity metric and the Complete linkage to compute the corresponding dendrogram (Figure 6). The Pearson correlation similarity metric did not produce any clusters so the Manhattan metric was used instead – this is probably because the single index used is insufficient to produce meaningful clusters.

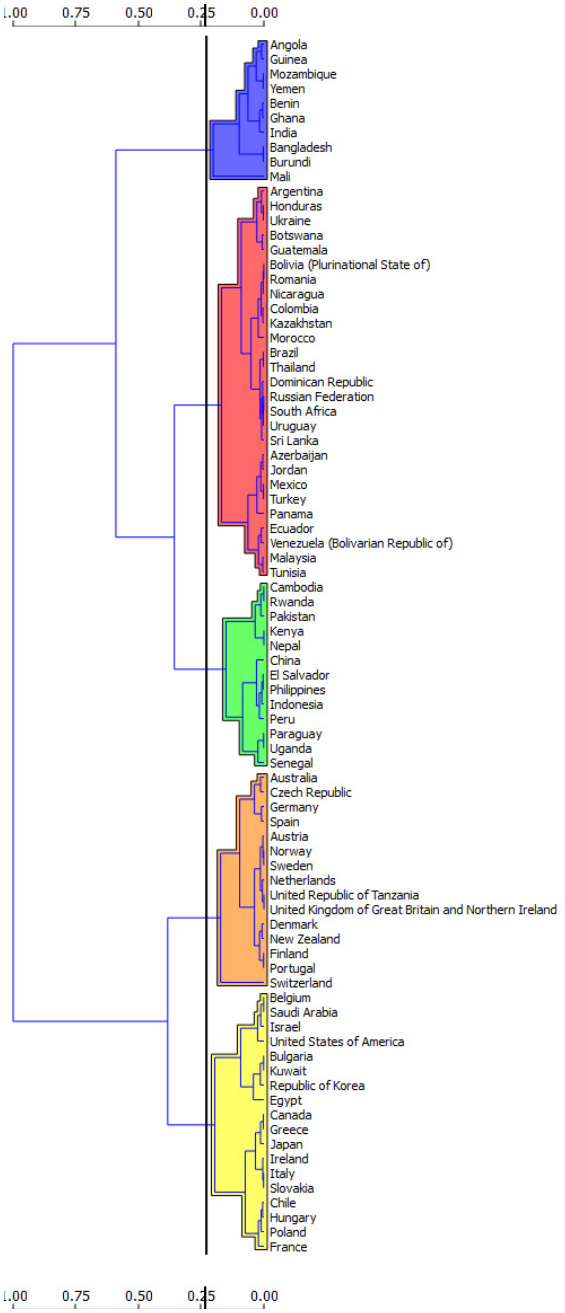

Figure 6. Dendrogram of environment index clusters. Line indicates coloring cutoff point (approx. at ~0.23)

We note that OECD, EU and Eurozone members tend to cluster in two groups except for Romania (EU member). If we take this into consideration it would appear that sociopolitical institutions like the OECD, EU and Eurozone tend to propagate similar levels of environment-friendly performances.

5. Summary and Future Directions

In this brief paper we set out to explore how the 'world' clusters according to the synthetic indices produced by various researchers, institutes and think tanks. In doing so we selected an indicative, but somewhat arbitrary collection of such indices that collectively portray a PEST-like view of the world and consider its uniformity under a new 'lens'.

Despite the arbitrariness and the debate around any of these indicators, our analogy is that they will eventually become equivalent to 'measurement' instruments, or 'sensors,' of a country's performance. Like with all instruments and sensors, their 'accuracy' and fitness for their purpose will be proven in due course; but we can still try to make the best use of them in the meantime. Thus paper comprises an exploratory analysis into the world of synthetic indices. It is by no means an exhaustive or rigorous investigation of the field, but, we believe, it is indicative that there is plenty of '*data to be mined*' and '*knowledge to be discovered*,' or at least, interesting facts that deserve a second look.[9] We outline some of our corresponding findings below.

Although it is well known that the world is by no means uniform, in political, economic, social, or technological terms, proponents of the globalization process or international country institutions, like the Eurozone, EU or OECD, suggest otherwise. For instance the EU, a political union, and the Eurozone, a monetary union within the EU, seem to show large variability in the 'index' performance of their members. While no one would expect the EU or the Eurozone to be 'flat-line' uniform, the intuitive expectation is for EU and Eurozone members to be rather similar and to cluster together. With regret and strong reservations, we must admit that this observation justifies arguments typically raised sceptics of the EU the Eurozone or both.

We also note that under our analytic 'lens' there are a number of preconceptions, or prejudices, that also seem to break down, against what one might expect. For instance, the 'north-south' or the 'east-west' divides are not consistently found in any of our clusters. Even the trending BRICS cluster is only to be found in the Well-being analysis but not anywhere else, contrary to any expectations one might have.

During the course of this study we have also identified a number of issues that influence the outcome of our study and may affect similar future studies.

First, exploring the relationships between globalized indicators is a daunting task with many complexities. The indicators are frequently on different scales; this is to be expected of course, but for 'scientific measurement' purposes it would be useful if all indices are readily scaled to common scale. Surely, this is easier said than done, but imagine the world without standard measurement systems.

Second, methodologically, we used the data from these indices to perform 'black-box' like cluster analysis on the set of 83 countries that are common to the 15 indices used in this study. For this purpose we used a software platform that allowed us to use it as black box, i.e. with as few adjustments as possible. The important observation here is that no two of the indices share a view of the world. It is as if 15 indices refer to 15 different globes; so this is perhaps something that should be amended by future index-makers or index-revisions.

Third, although the synthesis of each index varies significantly to the next, we noted that an index may comprise statistical indicators that are also found in other indices, which may influence the corresponding cluster formations, to a small extent (for instance "life expectancy" is found in the Social Progress Index with 54 indicators in total, the Legatum Prosperity Index with 89 indicators in total, and the Global Competitiveness Index with 116 indicators in total). Due to the dissimilarity in the number and types of indicators used among the indices, the influence of a common indicator is unlikely to be significant but should be taken into account nonetheless in similar studies.

Fourth, this foray into the world of synthetic indicators leads us to ask more questions than we could possibly answer in the finite space of this paper. Some the indices refer to data that is more than 10 years old, and yet they are still being treated as 'relevant' by some of analysts, by virtue of their being the only ones addressing a particular conceptual framework – the globalization indices being the main suspects here. Repeatedly we found ourselves wondering how different indices would stack up against single statistical indicators; for instance how does the

[9] Paraphrasing the terms "Data mining" and "Knowledge discovery (in databases)" which are the scientific disciplines underlying this study and its methodology.

environmental performance index score of a country compare to its internet use or its life expectancy? Which economic indicators, if any, may be correlated to the well-being score of a country? Which indicators are the culprits for influencing the 'break-down' of OECD, EU or the Eurozone into different clusters? Could any of these clusters point towards the development of new bilateral or multilateral institutions, or partnerships that would allow their members to rip the benefits and shed the harms?

The outcomes of our study are by no means conclusive as to the picture of the world portrayed by the GPE clusters considered here. However we find that this exploratory study shows there is scope to delve deeper into the world of synthetic indices. Most importantly, perhaps, there is scope in using them as instrumentation proxies for monitoring and diagnosing complex interactions between countries around the world, to which we invite fellow researchers and academics to explore.

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Appendix A. Appendix

A.1. Places-index master table

A.	SocProIn	F.	WldPrIn	K.	GlFdSecIn
B.	EnvPerIn	G.	CorPerIn	L.	WBDoBus
C.	KOFGlobIn	H.	WldGovIn	M.	CSGRIn
D.	LegProsIn	I.	GloCompIn	N.	GloInnovIn
E.	MaaGlobIn	J.	GloPeaceIn	O.	NetReadIn

Table 7. Places listed per index

Places List	Used in	UN Member	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Afghanistan	9	Yes	–	x	x	x	–	x	x	x	–	x	–	x	x	–	–
Albania	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Algeria	14	Yes	x	x	x	x	–	x	x	x	x	x	x	x	x	x	x
American Samoa	3	Territory	–	–	x	–	–	–	–	x	–	–	–	–	x	–	–
Andorra	3	Yes	–	–	–	–	–	x	–	x	–	–	–	–	x	–	–
Angola	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Anguilla	1	Territory	–	–	–	–	–	–	–	x	–	–	–	–	–	–	–
Antigua and Barbuda	6	Yes	–	x	x	–	–	x	–	x	–	–	–	x	x	–	–
Argentina	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Armenia	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Aruba	2	Territory	–	–	–	–	–	–	–	x	–	–	–	–	x	–	–
Australia	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Austria	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Azerbaijan	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Bahamas	6	Yes	–	x	x	–	–	–	x	x	–	–	–	x	x	–	–
Bahrain	11	Yes	–	x	x	–	–	x	x	x	x	x	–	x	x	x	x
Bangladesh	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Barbados	9	Yes	–	x	x	–	–	–	x	x	x	–	–	x	x	x	x
Belarus	13	Yes	x	x	x	x	x	x	x	x	–	x	x	x	x	x	–
Belgium	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Belize	8	Yes	–	x	x	x	–	x	–	x	x	–	–	x	x	–	–
Benin	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Bermuda	3	Territory	–	–	x	–	–	–	–	x	–	–	–	–	x	–	–
Bhutan	11	Yes	–	x	x	–	–	x	x	x	x	x	–	x	x	x	x
Bolivia (Plurinational State of)	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Bosnia and Herzegovina	13	Yes	x	x	x	x	–	x	x	x	x	x	–	x	x	x	x
Botswana	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Brazil	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Brunei Darussalam	9	Yes	–	x	x	–	–	x	–	x	x	–	–	x	x	x	x
Bulgaria	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Burkina Faso	14	Yes	x	x	x	x	–	x	x	x	x	x	x	x	x	x	x
Burundi	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Cambodia	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Cameroon	14	Yes	x	x	x	x	–	x	x	x	x	x	x	x	x	x	x

Places List	Used in	UN Member	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Canada	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Cabo Verde	10	Yes	–	x	x	–	–	x	x	x	x	–	–	x	x	x	x
Cayman Islands	3	Territory	–	–	x	–	–	–	–	x	–	–	–	–	x	–	–
Central African Republic	10	Yes	x	x	x	x	–	x	x	x	–	x	–	x	x	–	–
Chad	13	Yes	x	x	x	x	–	x	x	x	x	x	x	x	x	–	x
Channel Islands	3	Territory	–	–	x	–	–	–	–	x	–	–	–	–	x	–	–
Chile	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
China	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Colombia	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Comoros	8	Yes	–	x	x	–	–	x	x	x	–	–	–	x	x	–	x
Dem. Republic of the Congo	10	Yes	–	x	x	x	–	x	x	x	–	x	x	x	x	–	–
Congo	10	Yes	x	x	x	x	–	x	x	x	–	x	–	x	x	–	–
Cook islands	1	Territory	–	–	–	–	–	–	–	x	–	–	–	–	–	–	–
Costa Rica	14	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	–
Côte DIvoire	14	Yes	–	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Croatia	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Cuba	8	Yes	x	x	x	–	–	x	x	x	–	x	–	–	x	–	–
Cyprus	12	Yes	–	x	x	x	–	x	x	x	x	x	–	x	x	x	x
Cyprus North	1	No	–	–	–	–	–	x	–	–	–	–	–	–	–	–	–
Czech Republic	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Denmark	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Djibouti	10	Yes	x	x	x	x	–	x	x	x	–	x	–	x	x	–	–
Dominica	6	Yes	–	x	x	–	–	–	x	x	–	–	–	x	x	–	–
Dominican Republic	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Ecuador	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Egypt	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
El Salvador	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Equatorial Guinea	7	Yes	–	x	x	–	–	x	–	x	–	x	–	x	x	–	–
Eritrea	8	Yes	–	x	x	–	–	x	x	x	–	x	–	x	x	–	–
Estonia	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Ethiopia	13	Yes	–	x	x	x	–	x	x	x	x	x	x	x	x	x	x
Faeroe Islands	2	Territory	–	–	x	–	–	–	–	–	–	–	–	–	x	–	–
Fiji	7	Yes	–	x	x	–	–	x	–	x	–	–	–	x	x	x	–
Finland	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Places List	Used in	UN Member	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
France	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
French guiana	1	Territory	–	–	–	–	–	–	–	x	–	–	–	–	–	–	–
French Polynesia	2	Territory	–	–	x	–	–	–	–	–	–	–	–	–	x	–	–
Gabon	11	Yes	–	x	x	–	x	x	x	x	x	x	–	x	x	–	x
Gambia	12	Yes	–	x	x	–	x	x	x	x	x	x	–	x	x	x	x
Georgia	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Germany	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Ghana	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Greece	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Greenland	3	Territory	–	–	x	–	–	–	–	x	–	–	–	–	x	–	–
Grenada	5	Yes	–	x	x	–	–	–	–	x	–	–	–	x	x	–	–
Guam	3	Territory	–	–	x	–	–	–	–	x	–	–	–	–	x	–	–
Guatemala	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Guinea	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Guinea Bissau	8	Yes	–	x	x	–	–	x	x	x	–	x	–	x	x	–	–
Guyana	12	Yes	x	x	x	–	–	x	x	x	x	x	–	x	x	x	x
Haiti	13	Yes	–	x	x	x	x	x	x	x	x	x	x	x	x	–	x
Honduras	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Hong Kong SAR	9	Territory	–	–	–	x	–	x	x	x	x	–	–	x	x	x	x
Hungary	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Iceland	13	Yes	x	x	x	x	–	x	x	x	x	x	–	x	x	x	x
India	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Indonesia	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Iran (Islamic Republic of)	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Iraq	10	Yes	x	x	x	x	–	x	x	x	–	x	–	x	x	–	–
Ireland	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Isle of Man	2	Territory	–	–	x	–	–	–	–	–	–	–	–	–	x	–	–
Israel	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Italy	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Jamaica	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Japan	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Jordan	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Kazakhstan	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Kenya	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Places List	Used in	UN Member	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Kiribati	5	Yes	–	x	x	–	–	–	–	x	–	–	–	x	x	–	–
Dem. Peoples' Rep. of Korea	6	Yes	–	–	x	–	–	x	x	x	–	x	–	–	x	–	–
Republic of Korea	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Kosovo	5	No	–	–	–	–	–	x	x	x	–	x	–	x	–	–	–
Kuwait	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Kyrgyzstan	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Lao People's Dem. Republic	13	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	–	x
Latvia	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Lebanon	13	Yes	x	x	x	x	–	x	x	x	x	x	–	x	x	x	x
Lesotho	13	Yes	x	x	x	–	x	x	x	x	x	x	–	x	x	x	x
Liberia	12	Yes	x	x	x	x	–	x	x	x	x	x	–	x	x	–	x
Libya	10	Yes	–	x	x	–	–	x	x	x	x	x	–	x	x	–	x
Liechtenstein	4	Yes	–	–	x	–	–	x	–	x	–	–	–	–	x	–	–
Lithuania	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Luxembourg	11	Yes	–	x	x	x	–	x	x	x	x	–	–	x	x	x	x
Macao, China	3	Territory	–	–	x	–	–	–	–	x	–	–	–	–	x	–	–
Macedonia, FYR	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Madagascar	14	Yes	x	x	x	–	x	x	x	x	x	x	x	x	x	x	x
Malawi	14	Yes	x	x	x	x	–	x	x	x	x	x	x	x	x	x	x
Malaysia	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Maldives	5	Yes	–	–	x	–	–	x	–	x	–	–	–	x	x	–	–
Mali	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Malta	11	Yes	–	x	x	x	–	x	x	x	x	–	–	x	x	x	x
Marshall Islands	4	Yes	–	–	x	–	–	–	–	x	–	–	–	x	x	–	–
Martinique	1	Territory	–	–	–	–	–	–	–	x	–	–	–	–	–	–	–
Mauritania	13	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	–	x
Mauritius	13	Yes	x	x	x	–	x	x	x	x	x	x	–	x	x	x	x
Mayotte	1	Territory	–	–	–	–	–	–	–	–	–	–	–	–	x	–	–
Mexico	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Micronesia (Federated States of)	4	Yes	–	–	x	–	–	–	–	x	–	–	–	x	x	–	–
Republic of Moldova	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Monaco	3	Yes	–	–	x	–	–	–	–	x	–	–	–	–	x	–	–
Mongolia	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Montenegro	12	Yes	x	x	x	x	–	x	x	x	x	x	–	x	–	x	x

Places List	Used in	UN Member	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Morocco	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Mozambique	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Myanmar	12	Yes	–	x	x	–	–	x	x	x	x	x	x	x	x	x	x
Namibia	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Nauru	1	Yes	–	–	–	–	–	–	–	x	–	–	–	–	–	–	–
Nepal	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Netherlands	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Netherlands Antilles	3	Territory	–	–	x	–	–	–	–	x	–	–	–	–	x	–	–
New Caledonia	3	Territory	–	–	x	–	–	–	–	x	–	–	–	–	x	–	–
New Zealand	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Nicaragua	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Niger	13	Yes	x	x	x	x	–	x	x	x	–	x	x	x	x	x	x
Nigeria	14	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	–
Niue	1	Territory	–	–	–	–	–	–	–	x	–	–	–	–	–	–	–
Northern Mariana Islands	2	Territory	–	–	x	–	–	–	–	–	–	–	–	–	x	–	–
Norway	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Oman	11	Yes	–	x	x	–	–	x	x	x	x	x	–	x	x	x	x
Pakistan	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Palau	5	Yes	–	x	x	–	–	–	–	x	–	–	–	x	x	–	–
Panama	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Papua New Guinea	9	Yes	–	x	x	–	x	x	x	x	–	x	–	x	x	–	–
Paraguay	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Peru	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Philippines	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Poland	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Portugal	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Puerto Rico	7	Territory	–	–	x	–	–	–	x	x	x	–	–	x	x	–	x
Qatar	11	Yes	–	x	x	–	–	x	x	x	x	x	–	x	x	x	x
Réunion	1	Territory	–	–	–	–	–	–	–	x	–	–	–	–	–	–	–
Romania	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Russian Federation	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Rwanda	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Samoa	6	Yes	–	–	x	–	–	x	x	x	–	–	–	x	x	–	–
San Marino	4	Yes	–	–	x	–	–	–	–	x	–	–	–	x	x	–	–

Places List	Used in	UN Member	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Sao Tome and Principe	5	Yes	–	–	x	–	–	–	x	x	–	–	–	x	x	–	–
Saudi Arabia	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Senegal	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Serbia	14	Yes	x	x	x	x	–	x	x	x	x	x	x	x	x	x	x
Seychelles	10	Yes	–	x	x	–	–	x	x	x	x	–	–	x	x	x	x
Sierra Leone	12	Yes	–	x	x	x	–	x	x	x	x	x	x	x	x	–	x
Singapore	13	Yes	–	x	x	x	–	x	x	x	x	x	x	x	x	x	x
Slovakia	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Slovenia	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Solomon Islands	5	Yes	–	x	x	–	–	–	–	x	–	–	–	x	x	–	–
Somalia	7	Yes	–	x	x	–	–	x	x	x	–	x	–	–	x	–	–
South Africa	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
South Sudan	5	Yes	–	–	–	–	–	x	x	x	–	x	–	x	–	–	–
Spain	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Sri Lanka	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Saint Kitts and Nevis	4	Yes	–	–	x	–	–	–	–	x	–	–	–	x	x	–	–
Saint Lucia	4	Yes	–	–	x	–	–	–	–	x	–	–	–	x	x	–	–
Saint Vincent & the Grenadines	5	Yes	–	–	x	–	–	–	x	x	–	–	–	x	x	–	–
Sudan	13	Yes	x	x	x	x	x	x	x	x	–	x	x	x	x	x	–
Suriname	9	Yes	–	x	x	–	–	x	x	x	x	–	–	x	x	–	x
Swaziland	12	Yes	x	x	x	–	–	x	x	x	x	x	–	x	x	x	x
Sweden	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Switzerland	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Syrian Arab Republic	12	Yes	–	x	x	x	x	x	x	x	x	x	x	x	x	–	–
Taiwan, China	9	Territory	–	x	–	x	–	x	x	x	x	x	–	x	–	–	x
Tajikistan	13	Yes	x	x	x	x	–	x	x	x	x	x	x	x	x	x	–
United Republic of Tanzania	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Thailand	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Timor-Leste	10	Yes	–	x	x	–	–	x	x	x	x	x	–	x	x	–	x
Togo	13	Yes	x	x	x	x	x	x	x	x	–	x	x	x	x	x	–
Tonga	6	Yes	–	x	x	–	–	x	–	x	–	–	–	x	x	–	–
Trinidad and Tobago	14	Yes	x	x	x	x	x	x	x	x	x	x	–	x	x	x	x
Tunisia	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Turkey	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Places List	Used in	UN Member	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Turkmenistan	8	Yes	–	x	x	–	x	x	x	x	–	x	–	–	x	–	–
Tuvalu	1	Yes	–	–	–	–	–	–	–	x	–	–	–	–	–	–	–
Uganda	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Ukraine	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
United Arab Emirates	14	Yes	x	x	x	x	–	x	x	x	x	x	x	x	x	x	x
United Kingdom	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
United States of America	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Uruguay	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Uzbekistan	12	Yes	x	x	x	x	–	x	x	x	–	x	x	x	x	x	–
Vanuatu	5	Yes	–	x	x	–	–	–	–	x	–	–	–	x	x	–	–
Venezuela, Bolivarian Rep.	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Viet Nam	14	Yes	–	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Virgin Islands (U.S.)	3	Territory	–	–	x	–	–	–	–	x	–	–	–	–	x	–	–
West Bank and Gaza	5	No	–	–	x	–	–	x	–	x	–	–	–	x	x	–	–
Yemen	All	Yes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Zambia	14	Yes	x	x	x	x	–	x	x	x	x	x	x	x	x	x	x
Zimbabwe	12	Yes	–	x	x	x	–	x	x	x	x	x	–	x	x	x	x

A.2. Directory of index publishers and data sources

Social Progress Index

Publisher(s)	The Social Progress Imperative
Based in	USA
Internet Address	http://www.socialprogressimperative.org/

Environmental Performance Index

Publisher(s)	Yale Center for Environmental Law & Policy (YCELP) Center for International Earth Science Information Network (CIESIN), Columbia University World Economic Forum Samuel Family Foundation McCall MacBain Foundation.
Based in	USA (Yale & Columbia)
Internet Address	http://epi.yale.edu/

KOF Globalization Index

Publisher(s)	KOF Swiss Economic Institute
Based in	Switzerland
Internet Address	http://globalization.kof.ethz.ch/

Legatum Prosperity Index

Publisher(s)	Legatum Institute
Based in	UK
Internet Address	http://www.prosperity.com/

Maastricht Globalization Index

Publisher(s)	Prof. Pim Martens, Maastricht University
Based in	Netherlands
Internet Address	http://pimmartens.info/research/globalisation-index/

World Press Freedom Index

Publisher(s)	Reporters without borders (Reporters sans frontiers)
Based in	France (Headquarters)
Internet Address	http://en.rsf.org/

Corruption Perceptions Index

Publisher(s)	Transparency International
Based in	Germany (Secreteriat)
Internet Address	http://www.transparency.org/research/cpi/

Worldwide Governance Indicators

Publisher(s)	The World Bank Group
Based in	USA (Headquarters)
Internet Address	http://info.worldbank.org/governance/wgi/

Global Competitiveness Index

Publisher(s)	World Economic Forum
Based in	Switzerland (Main office)
Internet Address	http://reports.weforum.org/global-competitiveness-report-2014-2015/

Global Peace Index

Publisher(s)	Institute for Economics and Peace

Based in	Australia (Main Office)
Internet Address	http://economicsandpeace.org

Global Food Security Index

Publisher(s)	The Economist Intelligence Unit, The Economist Group DuPont
Based in	UK (Main office)
Internet Address	http://foodsecurityindex.eiu.com/

World Bank – Doing Business

Publisher(s)	World Bank Group
Based in	USA (Headquarters)
Internet Address	http://www.doingbusiness.org/rankings

CSGR – Globalization Index

Publisher(s)	Centre for the Study of Globalisation and Regionalisation, Warwick University
Based in	UK
Internet Address	http://www2.warwick.ac.uk/fac/soc/csgr/index/

Global Innovation index

Publisher(s)	Cornell University INSEAD (Business School) World Intellectual Property Organization (WIPO)
Based in	USA (Cornell), France (INSEAD), Switzerland (WIPO)
Internet Address	http://www.globalinnovationindex.org/

Network Readiness Index

Publisher(s)	Global Information Technology Report, World Economic Forum
Based in	Switzerland (Main office)
Internet Address	http://reports.weforum.org/global-information-technology-report-2015/